

Applicants: Philip O. Livingston and Friedhelm Helling  
Serial No.: 08/477,097  
Filed : June 7, 1995  
Page 30

---

Exhibit A  
Amended Claims

--78. (Amended) A composition which comprises:

a) a conjugate of i) a GM2 or GD2 ganglioside derivative which comprises an unaltered oligosaccharide part and an altered ceramide portion comprising a sphingosine base, to ii) Keyhole Limpet Hemocyanin, comprising an  $\epsilon$ -aminolysyl group;

b) a saponin derivable from the bark of a Quillaja saponaria Molina tree; and

c) a pharmaceutically acceptable carrier;

the relative amounts of such conjugate and such saponin being effective to stimulate or enhance antibody production in a subject,

wherein in the conjugate the ganglioside derivative is [conjugated] covalently bound to Keyhole Limpet Hemocyanin through a [ceramide-derived carbon] C-4 carbon of the sphingosine base of the ceramide portion of the ganglioside derivative to the  $\epsilon$ -aminolysyl group of Keyhole Limpet Hemocyanin, wherein the C-4 carbon is present in a CH<sub>2</sub> group.--

--92. (Amended) A method of stimulating or enhancing antibody production in a subject which comprises

Applicants: Philip O. Livingston and Friedhelm Helling  
Serial No.: 08/477,097  
Filed : June 7, 1995  
Page 31

administering to the subject an effective amount of  
a composition which comprises:

a) a conjugate of i) a GM2 or GD2 ganglioside derivative which comprises an unaltered oligosaccharide part and an altered ceramide portion comprising a sphingosine base, to ii) Keyhole Limpet Hemocyanin, comprising an  $\epsilon$ -aminolysyl group;

b) a saponin derivable from the bark of a Quillaja saponaria Molina tree; and

c) a pharmaceutically acceptable carrier;

the relative amounts of such conjugate and such saponin being effective to stimulate or enhance antibody production in the subject,

wherein in the conjugate the ganglioside derivative is [conjugated] covalently bound to Keyhole Limpet Hemocyanin through a [ceramide-derived carbon] C-4 carbon of the sphingosine base of the ceramide portion of the ganglioside derivative to the  $\epsilon$ -aminolysyl group of Keyhole Limpet Hemocyanin, wherein the C-4 carbon is present in a CH<sub>2</sub> group, so as to thereby stimulate or enhance antibody production in the subject.--

--94. (Three Times Amended) A method of treating a cancer in a subject which comprises administering to the

Applicants: Philip O. Livingston and Friedhelm Helling  
Serial No.: 08/477,097  
Filed : June 7, 1995  
Page 32

---

subject an effective cancer treating amount of a composition which comprises:

a) a conjugate of i) a GM2 or GD2 ganglioside derivative which comprises an unaltered oligosaccharide part and an altered ceramide portion comprising a sphingosine base, to ii) Keyhole Limpet Hemocyanin, comprising an  $\epsilon$ -aminolysyl group;

b) a saponin derivable from the bark of a Quillaja saponaria Molina tree; and

c) a pharmaceutically acceptable carrier;

the relative amounts of such conjugate and such saponin being effective to stimulate or enhance antibody production in the subject,

wherein in the conjugate the ganglioside derivative is [conjugated] covalently bound to Keyhole Limpet Hemocyanin through a [ceramide-derived carbon] C-4 carbon of the sphingosine base of the ceramide portion of the ganglioside derivative to the  $\epsilon$ -aminolysyl group of Keyhole Limpet Hemocyanin, wherein the C-4 carbon is present in a CH<sub>2</sub> group, so as to thereby treat the cancer in the subject.--